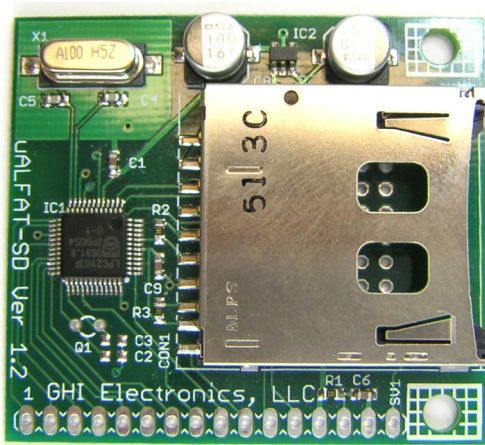**uALFAT-USB**
OEM solution for USB hosting

uALFAT-SD
OEM solution for FAT file access on SD and MMC cards

1.Introduction

uALFAT (pronounced microAL**FAT**) chipset is a complete solution for accessing USB devices. Where USB hosting was only possible using expensive computer boards that run huge operating systems. Now,

uALFAT gives many products the power of accessing USB devices with a minimum resources. USB devices such as keyboards, mice, joysticks, printers, cell phones...etc. uALFAT also contains a full FAT file system. This allows users to read and write files on USB memory devices such as USB hard drives and USB thumb drives. The same uALFAT chipset can also read and write FAT files on SD or MMC memory card. For more details on uALFAT, consult uALFAT Manual.

2.uALFAT OEM boards Key Features

- Fully assembled and tested
- Standard 0.1" placement for header
- Pin-out compatible with uPICFAT development system
- USB or SD connector
- Intergraded 1.8V regulator
- Ready for 32Khz crystal

3.Supported Devices

- USB hard drives
- USB thumb drives
- SD memory card
- MMC memory card
- USB joyatics
- USB mice'
- USB keyboards
- USB cell phones
- and many more!

Consult uALFAT and uALUSB manuals for more details.

4.Pin-out

Both boards have a very compatible pin-out. The interface pins are identical but the special feature pins are not the same. This allows the design of systems that can accept either board. Also,

uALFAT-USB board has all SD card pins mapped to the header in a case the user needs to use both USB and SD.

PIN #	uALFAT-USB	uALFAT-SD
1	UART_TX/DTRDY	UART_TX/DTRDY
2	UART_RS/BUSY	UART_RS/BUSY
3	I2C_SCL	I2C_SCL
4	I2C_SDA	I2C_SDA
5	SPI_SCK	SPI_SCK
6	SPI_MISO/UART_RTS	SPI_MISO/UART_RTS
7	SPI_MOSI/CTS	SPI_MOSI/CTS
8	SPI_SSEL#	SPI_SSEL#
9	SD_SSEL#	MISC
10	SD_MISO	CARD_DET
11	SD_SCK/WAKE	SD_SCK/WAKE
12	VBAT	VBAT
13	VCC (3.3V)	VCC (3.3V)
14	RESET#	RESET#
15	GND	GND
16	SD_MOSI	CARD_WP
17	VBCOMP	N/A
18	5V	N/A

5. Quick Start

The fastest way to get the OEM board started is through connecting the UART to a PC COM port through a an RS232 level converter. uALFAT commands are very simple for user to send them using a terminal program and the same commands are structured to be easily parsed by a simple microcontroller. Handshaking is not required as uALFAT can process the commands much faster that the user can enter them; therefore, CTS and RTS pins can be left from the RS232 level converter. It is very important to connect CTS to ground if it not going to be used by the user. So, the needed pins to be connected are UART_TX, UART_RX, VCC, GND and VBAT. Also in order to use UART, this interface must be selected, so SPI_SSEL and SPI_SCK must be grounded. uALFAT will NOT function if VBAT is not connected to 3.3V. When uALFAT-USB is used, 5V is required to power up the connected USB device.

Once the circuit is wired, a terminal must be set to 9600 baud with no parity and one stop bit the the board can be powered. If all connections are correct, a "GHI Electronics, LLC...." banner will show on the terminal.

6.GHI Supplies Everything!

We understand that our customer need a quick solution with little or no development time. For that, we provide a complete 'C' source code library for free to use uALFAT. The library should compile on any compiler for any processor. The library communicates with uALFAT through a simple driver. We provide examples to use UART, SPI or I2C using PICmicro from Microchip but the driver can be ported to any processor.

7.In-filed Upgradeable Firmware

uALFAT firmware is stored in the internal FLASH memory and can be updated. uALFAT can load the new firmware directly from the connected USB memory or SD memory card. This allows your system to be up to date with any new features or bug fixes.

8.Special Firmwares

uALFAT can also load special and custom firmwares. Fro example, uAL**USB** is a secondary firmware for uALFAT chipset that does many functions not available in the standard uALFAT firmware. We also offer the service of writing special firmwares to fit our customer's needs.